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CONTROLLING THE SUGARCANE BEETLE

ON CORN IN THE SOUTHERN STATES

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UNITED STATES DEPARTMENT OF AGRICULTURE

CONTROLLING THE SUGARCANE BEETLE on Corn in the Southern States

The sugarcane beetle [1] is usually found only in the Southern States. It damages corn severely in all Southern States except Florida, Kentucky, and Oklahoma, and it causes some damage to corn in these States. The amount of its damage varies widely from year to year. This insect is also a pest of sugarcane and rice.

DEVELOPMENT

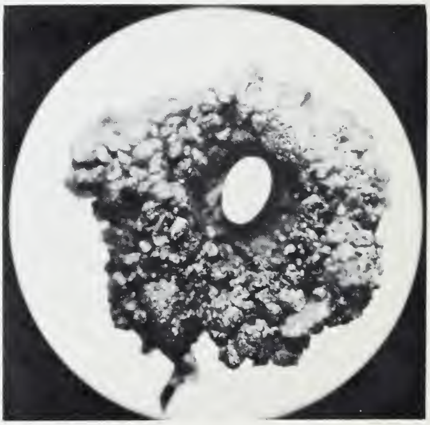
The sugarcane beetle has four stages of development—egg, larva (or grub), pupa, and adult (or beetle).

When first deposited, the egg is about the size of a pinhead and resembles a hen's egg shape. It is pearly white and smooth. It gradually changes shape and enlarges until, just before hatching, it is almost round and about twice its original size.

The larva is about 3/16 inch long when newly hatched, and grows until it is about 1¼ inches long and ¼ inch thick. The head is brick red. The body is dirty white and is distinctly darker near the tail. The legs are pale brown. The larva curls itself up in the form of a crescent, with the head almost touching the tail.

The pupa is about ¾ inch long and ⅜ inch broad. It is white at first, and gradually changes to pale brown.

The adult is a beetle about ½ inch long. It is stout, hard shelled, and jet black. The head is finely rough, and the thorax and wings are covered with minute depressions. The legs are very strong and have several coarse spines.



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Section of earthen cell containing an egg of the sugarcane beetle. Enlarged.

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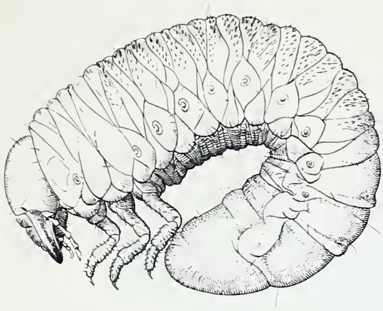
[1] *Euetheola rugiceps.*



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Full-grown larva of the sugarcane beetle. Enlarged.

SEASONAL HISTORY

The adult beetles overwinter in the ground and become active in late March or early April. When corn plants appear above ground, the beetles soon attack them. As the season progresses and temperatures rise, these pests become more active and feed more extensively until about the middle of June; then they rapidly decrease in numbers, become scarce within a month, and disappear about August 1.

The beetles mate in spring, below the surface of the ground. Soon afterward, the females lay their eggs in the ground. Eggs are laid singly or in groups of three or four. Egg laying continues through June.

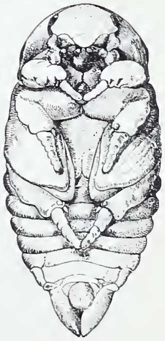
In about 2 weeks the eggs hatch into small, white larvae. The larvae feed on decaying vegetable matter in or on the ground. Larvae are common in midsummer and grow very rapidly; they reach full growth in about 2 months. When mature, they change into pupae, which do not feed and are unable to move about. In about 2 weeks, the skins of the pupae split and are cast off, and the fully developed beetles emerge.

Beetles of this new generation appear in late August or in September. During fall they spend most of the time in the ground, but come to the surface to feed on warm days. At this time they feed on any cultivated or wild grasses that are available. When cold weather arrives, the beetles become inactive in the ground and remain in this condition throughout winter. There is only one generation a year.

DAMAGE

Injury to corn is caused only by the beetles; the larvae never have been found attacking growing plants. Damage is done during spring and early summer. The beetles attack the crop as soon as the plants appear above ground and may cause serious damage until the plants are at least knee high.

In Virginia, damage usually is most severe between May 20 and



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Pupa of the sugarcane beetle. Enlarged.

June 15, but some injury may be caused as late as July 1. In the Gulf Coast States, the most severe damage occurs between April 15 and June 15.

The beetles chew into the outer wall of the stalk just below the surface of the ground, and make a large, ragged opening. If the plant is very young, this injury may kill it. Or, the injury may destroy the tender, growing part or "heart," and cause the central roll of leaves to wither while the outer leaves retain their freshness. The wilted leaves die, and can be pulled out easily.

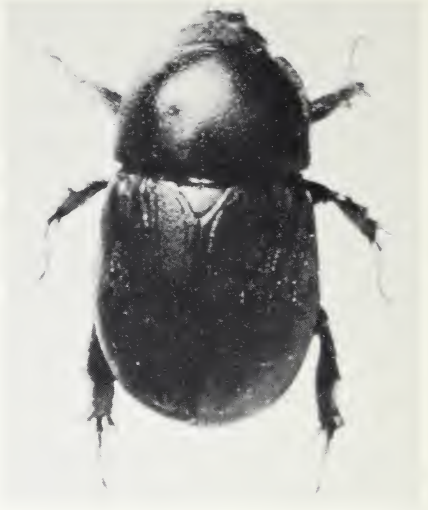
By the time the corn is 3 feet tall the plant has formed joints, so feeding by the beetles does not kill the heart. At this stage of growth the damage is not severe, and the plants recover more readily.

CONTROL

Applying Insecticide

The easiest and most practical way to control the sugarcane beetle on corn is to apply insecticide. Either aldrin or heptachlor is effective. Either may be applied as an emulsion spray or in granular form.

Spray.—To make a spray, use an emulsifiable concentrate that contains 2 pounds of aldrin or heptachlor per gallon. Mix 2 quarts of the concentrate with at least 15 gallons of water, and apply this quantity to each acre. Do not use a more concentrated spray; it might burn the plants. The spray may be applied with either a hand or machine sprayer.



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The adult sugarcane beetle. Enlarged.

Granules.—If you use granules, they should contain 5 to 20 percent of aldrin or heptachlor. Apply them at the rate of 1 pound of active ingredient per acre. For example, if you use 5-percent granules, apply 20 pounds per acre; if you use 20-percent granules, apply 5 pounds per acre. Granules may be applied by any of the following methods: By hand; with a seeder that has some holes closed to limit the rate of distribution; with a hand duster; with a fertilizer-distributor attachment; or with any other equipment that will place a band of the granules on top of the row at the recommended rate.

Application.—Apply the spray or granules in a band 6 to 8 inches

wide on top of the row. Make the application at planting time or as soon as possible after the corn comes up. Do not apply the insecticide after the plants have reached a height of 6 inches. Satisfactory control has not been obtained by applying insecticide in combination with a fertilizer, nor has it been obtained by planting seed treated with insecticide.

Cultural Practices

Damage by the sugarcane beetle can be lessened by good cultural practices. Plant good seed, and fertilize the soil well. This will encourage the growth of vigorous corn plants that will quickly reach a stage of growth not likely to be seriously injured by the insect.

Plant at the proper time. Consult your county agent or State agricultural experiment station to learn the best planting dates for your locality.

In most areas where the beetle is a major pest of corn there are large acreages of grass-sod pasture in which the insect breeds. Also, the beetle flies considerable distances in search of suitable host plants. Therefore it is difficult, and of doubtful value in most situations, to attempt to eliminate breeding areas. However, if there is very little grass-sod land in your vicinity, some additional protection against the beetle may be obtained by plowing out the sod areas or planting them to row crops such as corn or to a good stand of clover.

PRECAUTIONS

Insecticides are poisonous to man and animals. Use them only when needed and handle them with care. Follow directions and heed all precautions on container labels.

Keep insecticides in closed, well-labeled containers, in a dry place where they will not contaminate food or feed and where children and pets cannot reach them.

Avoid repeated or prolonged contact of insecticides with the skin. Avoid inhalation of dusts and mists. Wear clean, dry clothing, and wash hands and face before eating or smoking.

When handling a concentrate avoid spilling it on the skin and keep it out of the eyes, nose, and mouth. If any is spilled, wash it off the skin and change clothing immediately. If it gets in the eyes, flush them with plenty of water for 15 minutes and get medical attention.

To protect fish and wildlife, be careful not to contaminate streams, lakes, or ponds with insecticides. Do not clean spraying equipment or dump excess spray material near such water.

Avoid drift of insecticide sprays or dusts to nearby crops or livestock. Do not allow poultry, dairy, animals, or meat animals to feed on plants or drink water contaminated by drift of insecticides.

Prepared by

ENTOMOLOGY RESEARCH DIVISION
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